3.0 HARLEM VALLEY TRANSPORTATION PLAN

Incorporates transportation systems management and safety improvements.

Location: Route 22 corridor

Existing Characteristics of Concern and/or Project Objectives: The Harlem Valley Transportation Plan is a document that can be adopted by the participating communities. This plan depicts the rights-of-way for proposed roads and modification to existing roads. The Plan would allow the municipality to protect the right-of-way from development and it provides developers with a clear understanding of road location needs. The plan also guides the municipalities, the county and the state on future projects by providing a clear vision for the area. The following strategies, in this section, will be progressed through the Harlem Valley Transportation Plan.

Probable Cost:	Low
Estimated Technical Requirements:	Average
Potential Environmental Impacts:	Negligible

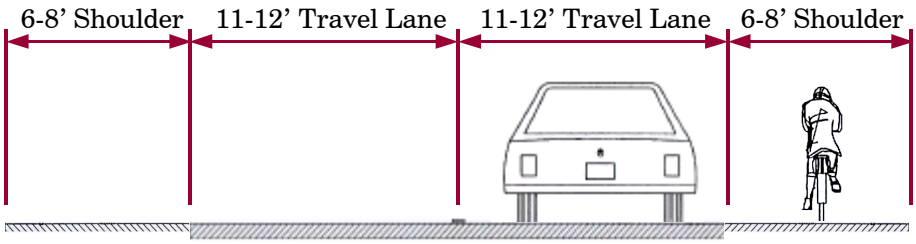
3.1 Cross-section guidelines.

Locations: As defined below for the various sections

Existing Characteristics of Concern and/or Project Objectives: Establish cross-section guidelines for the Route 22 corridor that defines the community's vision for the corridor. These guidelines will be incorporated in future development and highway reconstruction projects as they occur.

Probable Cost:	As defined below for the various sections
Estimated Technical Requirements:	As defined below for the various sections
Potential Environmental Impacts:	As defined below for the various sections.

3.1.1 Rural cross-section guidelines.



Locations on Route 22:

- River Road (Pawling) to Hutchinson Ave (Dover)
- Rural Ave (Dover) to South Nellie Hill Rd (Dover)
- Route 343 north leg (Amenia) to Lake Road (Amenia)
- Hamms Rd (Amenia) to the southern village limits in Millerton
- Irondale Road (North East) to Columbia County Line

Existing Characteristics of Concern and/or Project Objectives: The existing rural cross section consists of 11- or 12-foot travel lanes with minimal paved shoulders. This existing narrow cross section does not facilitate good traffic flow because there is insufficient room for slow-moving or broken-down vehicles to move to the side of the roadway to let other vehicles pass. Provision of standard widths for travel lanes and shoulders consistent with existing and expected traffic volumes would make traffic flow through the corridor much more efficient and safer.

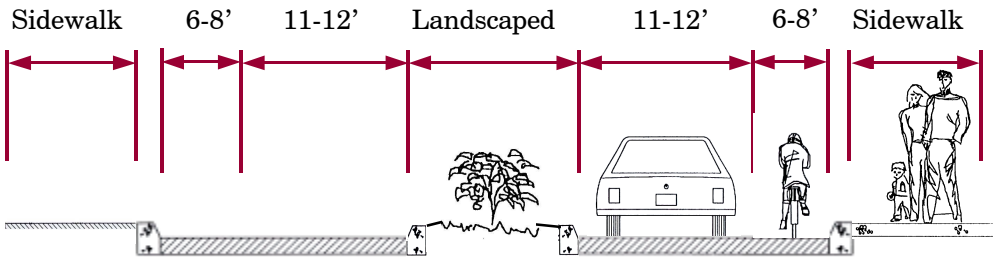
Probable Cost: The cost to improve the roadway to meet the recommended guidelines is high. However, most of this construction cost could come from state and/or federal transportation improvement funds. The cost to the local community would be low to moderate.

Estimated Technical Requirements: Low

Potential Environmental Impacts: Minor potential green space and wetland impacts due to roadway widening. Temporary traffic impacts during construction.

3.1.2 Highway commercial cross-section guidelines.

3.1.2.1 Develop a divided highway with a center landscaped median.



Location on Route 22: Pawling, south of Route 55

Existing Characteristics of Concern and/or Project Objectives: Medians can either be raised or flush with the travel way. They can consist of grass or other landscaping material or may simply be paved. Medians limit access across the highway and, as a result, reduce the number of potential vehicle conflict points. The community has expressed concern that this strategy is inconsistent with the rural character of most of the study area. Therefore, implementation of this strategy is limited to the existing commercially developed section in Pawling. The preferred median design would be a raised island with landscape material and accommodation of turning lanes where appropriate. This cross section guideline also includes a curbed roadside to limit driveway width and number of access points. The curb is offset from the edge of travel

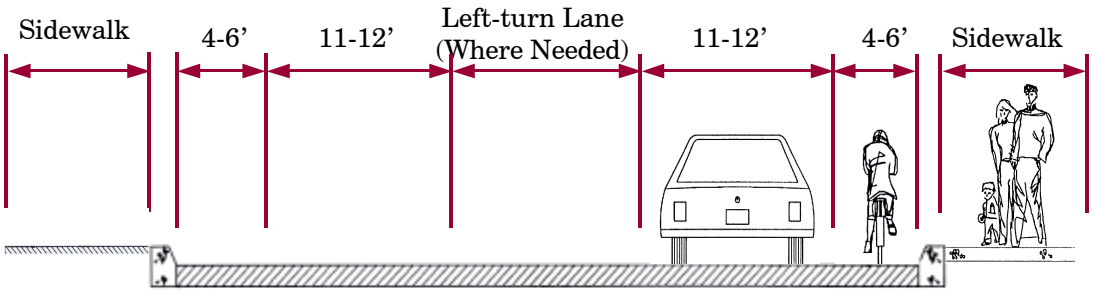
lane to provide adequate shoulder width for slow moving or broken-down vehicles and also provides a safe travel way for bicyclists. This section also includes sidewalks where practical to safely accommodate pedestrians.

Probable Cost: The cost to improve the roadway to meet the recommended guidelines is high. However, most of this construction cost could come from state and/or federal transportation improvement funds. The cost to the local community would be low to moderate.

Estimated Technical Requirements: Low

Potential Environmental Impacts: Minor potential green space and wetland impacts due to roadway widening. Temporary traffic impacts during construction.

3.1.2.2 **Develop an undivided highway**



Locations on Route 22:

- Village of Pawling corporate limits to River Road (Pawling)
- Hutchinson Ave (Dover) to Rural Ave (Dover)
- South Nellie Hill Rd (Dover) to North Nellie Hill Rd (Dover)

- Cart Road (Dover) to Route 343 north leg (Amenia)
- ½ mile north of Route 343/44 intersection (Amenia) to Hamms Road (Amenia)
- Village of Millerton corporate limits to Irondale Road (North East)

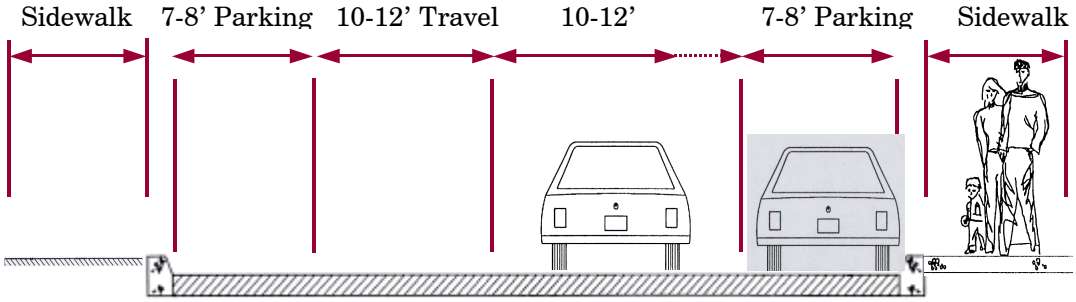
Existing Characteristics of Concern and/or Project Objectives: The undivided cross section guideline is similar to the divided cross section discussed above except for the raised median. With this cross section, mid-block left turns are allowed to enter driveways. Where left turn movements are high, at some intersections for example, additional roadway width should be provided to accommodate a left turn lane. Provision of this left turn lane removes stopped vehicles from the through travel lane which better facilitates traffic flow and provides a safer roadway by reducing rear-end accident potential. The provision of roadside curbing in commercial areas reduces confusion and makes for better access and egress to adjacent properties. The curb offset or shoulder and the provision of sidewalks accommodate bicyclists and pedestrians.

Probable Cost: The cost to improve the roadway to meet the recommended guidelines is high. However, most of this construction cost could come from state and/or federal transportation improvement funds. The cost to the local community would be low to moderate.

Estimated Technical Requirements: Low (from the municipality perspective)

Potential Environmental Impacts: Minor potential green space and wetland impacts due to roadway widening. Temporary traffic impacts during construction.

3.1.3 **Village/hamlet cross-section guidelines.**



Locations:

- Within Village of Pawling corporate limits
- Hamlet of Dover Plains from North Nellie Hill Rd to Cart Road
- Hamlet of Amenia from Lake Road to ½ mile north of Route 343/44 intersection
- Within Village of Millerton corporate limits

Existing Characteristics of Concern and/or Project Objectives: The village/hamlet cross section contains similar features as the commercial cross section as discussed above and these are provided for similar reasons. Some of the existing village/hamlet sections of Route 22 already contain these features. This guideline is to ensure the existing characteristics are maintained. Provision on street parking should be provided on side roads off Route 22.

Probable Cost: The cost to improve the roadway to meet the recommended guidelines is high. However, most of this construction cost could come from state and/or federal transportation improvement funds. The cost to the local community would be low to moderate.

Estimated Technical Requirements: Low

Potential Environmental Impacts: Minor potential green space and wetland impacts due to roadway widening. Temporary traffic impacts during construction.

3.2 Roadway connections

3.2.1 **Provide secondary access roads.**

Locations:

- Pawling, south of Route 55
- Dover, in areas of commercial strip development

Existing Characteristics of Concern and/or Project Objectives:
Secondary access/service or feeder roads remove turning traffic from the through route (Route 22) while maintaining access to businesses. Access/service roads are typically located parallel to and alongside the through route, although, the newest approach is to place these facilities behind the properties. Access/service roads alignments should be identified in advance of development or redevelopment and documented through official mapping. Easements are then acquired as development occurs and are recorded with the deed.

Probable Cost:	High
Estimated Technical Requirements:	Average
Potential Environmental Impacts:	Social/Land Use, Environmental

3.2.2 **Encourage grid system.**

Locations: Throughout the Harlem Valley with particular emphasis on the priority growth areas:

- Village of Pawling
- Wingdale—Former Harlem Valley Psychiatric Center
- Dover Plains
- Former Wassaic Developmental Center
- Amenia
- Village of Millerton

Encourage Grid System

Discourage dead end

Source: Hamlet Design Guidelines, Dutchess County Department of Planning and

Existing Characteristics of Concern and/or Project Objectives: As development occurs, new streets should be added to the existing network in a manner that maximizes mobility and encourages alternative modes of transportation (i.e., bicycling and walking). An effort should be made to encourage a grid pattern of short, straight streets that provide alternative travel patterns to avoid congestion associated with construction or accident activity. Cul-de-sacs and curvilinear streets should be avoided because they limit the distribution of traffic, increasing congestion at load points, and increase travel time.

Probable Cost:	Low, cost primarily borne by developer
Estimated Technical Requirements:	Average
Potential Environmental Impacts:	Social/Land Use, Environmental, Infrastructure

3.3 Capacity Improvements

Short-Term Capacity Improvements

3.3.1 Aikendale Road, Pawling

Existing Characteristics of Concern and/or Project Objectives:

The traffic signal at this intersection currently provides an acceptable level of service for vehicles traveling through the intersection. As traffic volumes increase, the average delay for motorists traveling through the intersection will also increase. The movements affected most by the increased traffic volume at this location include:

- Northbound shared through and right turns
- Westbound left turns

Making changes to the signal operations would improve the level of service for the intersection and would decrease the delay. Changing the signal phasing or the timings or providing additional signal heads for turning movements can improve traffic flow through the intersection and decrease delays.

Probable Cost:	Low
Estimated Technical Requirements:	Low
Potential Environmental Impacts:	None

3.3.2 Coulter Avenue/Pine Street, Pawling

Existing Characteristics of Concern and/or Project Objectives:
The recently installed traffic signal at this intersection (1999) also currently provides an acceptable level of service for vehicles traveling through the intersection. But again, as traffic volumes increase, the average delay for motorists traveling through the intersection will also increase. The movements affected most by the increased traffic volume at this location include all eastbound movements. Making changes to the signal operations would improve the level of service for the intersection and would decrease the delay. Changing the signal phasing or the timings or providing additional signal heads for turning movements can improve traffic flow through the intersection and decrease delays.

Probable Cost: Low

Estimated Technical Requirements: Low

Potential Environmental Impacts: None

3.3.3 Mill Street, Dover

Existing Characteristics of Concern and/or Project Objectives:
This intersection currently operates with tolerable delays during peak travel periods but will have capacity problems in the future as traffic volumes increase. The movements that will experience the biggest increased delays are:

- Northbound through and right turns
- All westbound movements

Adjusting the signal operations by changing the signal phasing or the timings can improve traffic flow through the intersection and decrease delays, but more significant improvements such as

providing additional lanes will also probably be required to improve capacity (see long-term capacity improvements below).

Probable Cost: Low

Estimated Technical Requirements: Low

Potential Environmental Impacts: None

Long-Term Capacity Improvements

3.3.4 CR 67 (Quaker Hill Road)/East Main Street, Pawling

Existing Characteristics of Concern and/or Project Objectives:

This intersection will suffer from capacity deficiencies similar to those discussed above, but unlike the above intersections that can be improved by making adjustments to the existing signals, this intersection needs more substantial changes to the existing signal to increase capacity. A capacity analysis showed that with no geometric improvements, this intersection would operate at level of service C, with the eastbound movement at level of service (LOS) D in the year 2020. This intersection would benefit by providing a through/left turn lane and a separate right-turn lane for the eastbound movement. This lane addition would improve the LOS for the eastbound traffic to C and decrease the amount of delay for the intersection as a whole (see **Appendix D** for complete level of service data). Along with this lane addition, corresponding signal head modifications would be necessary. Better alignment of the eastbound and westbound approaches would also greatly improve capacity and safety.

Probable Cost: High

Estimated Technical Requirements: Low

Potential Environmental Impacts: ROW Acquisition likely

3.3.5 **CR 21 (Pleasant Ridge Road), Dover**

Existing Characteristics of Concern and/or Project Objectives:
As traffic increases in the future along Route 22, it will become increasingly difficult for traffic headed westbound on Route 55 to make left turns onto Route 22 southbound. This is also a safety concern due to the angle at which Route 55 intersects with Route 22. To improve the westbound left-turn capacity deficiency and at the same time improve safety, all westbound traffic should be directed to the signalized intersection of Route 22 and CR 21 (Pleasant Ridge Road). The capacity analysis determined, that in the year 2020, the intersection would operate at LOS B with minimal delay. Then, taking into consideration the projected volume of the redirected westbound left-turn movement, the intersection delay increases to LOS C (see **Appendix D** for complete level of service data). The intersection has adequate capacity to accommodate the increased left-turn volume without geometric changes. The section of roadway from the intersection of Route 22 and Route 55 to the intersection of Route 55 with CR 21 (Pleasant Ridge Road) can be maintained as a one-way slip ramp for northbound traffic on Route 22 wanting to go east on Route 55.

Probable Cost: Low

Estimated Technical Requirements: Low

Potential Environmental Impacts: None

3.3.6 **Mill Street, Dover**

Existing Characteristics of Concern and/or Project Objectives:
Short-term adjustments to the signal operations can be conducted to solve some of the capacity issue at this intersection. However, as future traffic volumes increase, more significant changes will become necessary to make more substantial capacity improvements. A capacity analysis with signal timing and phasing optimization for the year 2020 showed that this intersection would operate at LOS C, but the westbound movement would fail. To improve capacity for westbound Mill Street traffic, separate right- and left-turn lanes should be provided. The additional lane improves the westbound LOS to C and decreases the delay for the intersection overall (see **Appendix D** for complete level of service data).

Probable Cost:	High
Estimated Technical Requirements:	Low
Potential Environmental Impacts:	Possible ROW Impacts

3.3.7 **Route 44/Route 343, Amenia**

Existing Characteristics of Concern and/or Project Objectives:
Capacity issues due to increased future traffic volumes at this intersection arise due to the lack of turn lanes. Using the existing geometry and projected volumes for the year 2020, an analysis determined that the intersection would operate at LOS D with considerable delays, especially for the southbound movement. In particular, the eastbound and southbound movements warrant separate left-turn lanes to improve the overall operation

of the intersection. These additional lanes improve to LOS B with minimal delays (see **Appendix D** for complete LOS data).

Probable Cost: High

Estimated Technical Requirements: Low

Potential Environmental Impacts: ROW Impacts Likely

3.3.8 **Route 44 (Main Street), Millerton**

Existing Characteristics of Concern and/or Project Objectives:
Capacity concerns are not as significant for this intersection as they are for the other intersections. According to a capacity analysis for 2020, the southbound movement does experience some increased delay (LOS D) due to increased volumes and would benefit from separate lanes for through and left-turn movements. The addition of a left-turn lane for southbound traffic improves the movement to LOS C (see **Appendix D** for complete LOS data). More significant are the delays associated with truck traffic trying to complete the turn from northbound Route 22 to eastbound Route 44. The turning radii at this intersection are not sufficient to accommodate the truck traffic that frequently travels through this intersection. This is addressed in alternative 3.4.15 Route 44/Route 22. The strategy for this location would be to widen the intersection. The cost and environmental impacts to do so would be high.

Probable Cost: High

Estimated Technical Requirements: Low

Potential Environmental Impacts: High, ROW and relocation impacts

3.4 Safety Improvements

Intersections with Route 22

3.4.1 Aikendale Road, Pawling

Existing Characteristics of Concern and/or Project Objectives: This intersection is a safety concern primarily because of the size of the intersection and traffic volumes associated with it. Over a 3-year period between 1996 and 1999, 13 accidents have occurred at this intersection. Of these accidents, 4 have included injuries, and 6 have included reportable property damage. Safety concerns may be remedied by providing the capacity improvements discussed under Section 3.3 above. Ensuring that the driveway alignment on the west side of the intersection is coordinated with Aikendale Road will also ensure safe operation of this intersection.

Probable Cost:	Low
Estimated Technical Requirements:	Low
Potential Environmental Impacts:	None

3.4.2 CR 67 (Quaker Hill Road)/East Main Street, Pawling

Existing Characteristics of Concern and/or Project Objectives: The concern for safety at this intersection is due to the vertical profile of Route 22 and resulting short sight distance. It is difficult for vehicles wanting to make a right turn onto Route 22 from East Main Street to see southbound vehicles on Route 22 because of a hill blocking sight distance. There is also a safety concern with opposing left-turn movements because of the alignment of East Main Street with CR 67 (Quaker Hill Road) (see long-term capa-

city improvements discussed under 3.3.4). Over a 3-year period between 1996 and 1999, 21 accidents have occurred at this intersection. Of these accidents, 8 have included injuries, and 13 have included reportable property damage. Correcting these concerns by changing the profile of Route 22 and re-aligning the intersection would be very costly, but should be considered as capital improvements to Route 22 are developed. An economical and short-term solution could be to restrict right turns on red. Currently, CR 67 (Quaker Hill Road) is posted for no turns on red, but East Main Street is not. Trees within the highway ROW near the intersection could also be removed to improve sight distance. Sight distance measurements should be taken and reviewed at this intersection to determine if these recommendations would address the concern.

Probable Cost:	Low
Estimated Technical Requirements:	Low
Potential Environmental Impacts:	None

3.4.3 **Coulter Avenue/Pine Street, Pawling**

Existing Characteristics of Concern and/or Project Objectives:

NYSDOT installed a traffic signal at this intersection to address a previous accident problem, and there is a perceived safety concern that is related to sight distance limitations due to the signal poles and signs in the vicinity. Future accident analyses should be conducted to determine if the accident rate has decreased. If accidents are still a problem at this intersection, a sight distance analysis should be conducted to verify the perceived sight distance concern and determine if mitigation is necessary. The

relatively heavy eastbound left-turn movement could potentially warrant a left-turn lane, but the configuration of Coulter Avenue would make developing a left-turn lane difficult. Reducing the signage at the intersection and possible relocation of the signal poles could improve sight distance, if warranted.

Probable Cost: Low

Estimated Technical Requirements: Low

Potential Environmental Impacts: None

3.4.4 **Kitchen Road, Dover**

Existing Characteristics of Concern and/or Project Objectives: The perceived concern at this location is vehicles slowing down to make a left turn onto Kitchen Road and being rear-ended by following vehicles. No accident information was identified during this study to support this concern, but accidents could potentially occur at this location and go unreported. There is similar concern for southbound vehicles. The apparent volume of turning vehicles does not warrant a turn lane at this time. Accident data for this location should be reviewed again in the future to verify the problem. Advance warning signage could be posted to warm motorists of the upcoming intersection.

Probable Cost: Low

Estimated Technical Requirements: Low

Potential Environmental Impacts: Reduces traffic flow

3.4.5 CR 26 (Cricket Hill Road), Dover

Existing Characteristics of Concern and/or Project Objectives:
Vehicles traveling westbound on CR 26 (Cricket Hill Road) toward Route 22 miss the stop sign and enter the intersection inadvertently. Intersection sight distance is also considered to be a problem due to rock outcroppings, trees, and the profile of Route 22. These are perceived problems at this location. There are no reported accident data or sight distance measurements to back up this concern. The strategy at this location would be to bring more attention to the stop sign on CR 26 by increasing the size of the sign, and adding additional warning signs. Trees should also be removed where possible to increase visibility of signs and Route 22. As capital improvements are made to Route 22, more significant grading changes should be considered to increase intersection sight distance.

Probable Cost:	Low
Estimated Technical Requirements:	Low
Potential Environmental Impacts:	None

3.4.6 Sherman Hill Road, Dover

Existing Characteristics of Concern and/or Project Objectives:
Sight distance is again the perceived concern here. No reported accident data or sight distance measurements exist to support this concern. The skew angle at which Sherman Hill Road intersects with Route 22 and the rock cuts make it difficult to see approaching vehicles on Route 22. Improving the intersection sight distance would involve costly re-aligning of the intersection and cutting back of the rock slopes along Route 22.

Probable Cost: Moderate to high, but state and/or federal transportation improvement programs could potentially fund much of the cost.

Estimated Technical Requirements: Average

Potential Environmental Impacts: Potential ROW impacts, land use

3.4.7 **Dover High School, Dover**

Existing Characteristics of Concern and/or Project Objectives: The left turn out of the driveway onto Route 22 headed southbound appears to have limited sight distance because of the rise in Route 22 to the north. The heavy volume of traffic turning into and out of the school entrance in the morning and afternoon, respectively, in addition to the heavy volume of traffic on Route 22, is also a concern. There were no reported accidents at this location. Provision of a traffic signal at this location could ease safety concerns, if warranted. A signal warrant analysis should be performed for this intersection to determine if a traffic signal is warranted. If approved by NYSDOT, the traffic signal at the school driveway must be installed and funded by the school district (or other party), since NYSDOT is prohibited by law from funding signals at school driveways.

Probable Cost: Low

Estimated Technical Requirements: Average

Potential Environmental Impacts: Minimal

3.4.8 **Dover Furnace Road, Dover**

Existing Characteristics of Concern and/or Project Objectives: The concerns at this intersection are similar to those for Sherman Hill Road. Rock outcroppings, trees and brush limit intersection sight distance. These are perceived problems at this location. There are no reported accident data or sight distance measurements to support this concern. Removal of obstructing trees and brush would help improve sight distance to a limited degree, but more substantial re-grading of rock cut slopes is necessary to improve sight distance to reasonable levels.

Probable Cost: High, but state and/or federal transportation improvement programs could potentially fund much of the cost.

Estimated Technical Requirements: Average

Potential Environmental Impacts: Land acquisition likely

3.4.9 **Oniontown Road, Dover**

Existing Characteristics of Concern and/or Project Objectives: The problem at this intersection is that it is too close to the Metro-North Railroad tracks. There is not enough storage space for vehicles waiting to turn onto Route 22 from Oniontown Road. NYSDOT currently has a project in the design phase that will relocate the intersection to a point farther north on Route 22 to eliminate the need for crossing the railroad tracks.

Probable Cost: Low

Estimated Technical Requirements: Low

Potential Environmental Impacts: None

3.4.10 **CR 105 (Sinpatch Road), Amenia**

Existing Characteristics of Concern and/or Project Objectives: As CR 105 (Sinpatch Road) approaches Route 22, it splits and intersects Route 22 at two locations. The south intersection has poor sight distance due to rock outcroppings and the skew angle of the intersection. The north intersection has fewer obstructions but still intersects at an undesirable angle. There are no reported accident data or sight distance measurements to support the concerns at either location. One strategy at this location could be to eliminate the south intersection and direct all vehicles to the north intersection where sight distance is somewhat better. Improvement of the intersection angle would also be beneficial. If the south intersection is maintained, the sight obstructions should be removed and the intersection angle improved to the extent possible.

Probable Cost:	Low
Estimated Technical Requirements:	Low to Average
Potential Environmental Impacts:	Minimal

3.4.11 **CR 81 (Old Route 22), Amenia**

Existing Characteristics of Concern and/or Project Objectives: Sight distance and the associated accident rate are concerns at this intersection. The sight distance for the CR 81 approach to the intersection can be limited by the intersection skew angle and steep vertical approach grade. Driveways on the eastbound approach to the intersection have limited sight distance due to the horizontal curve of Route 22 and embankments along the side of Route 22. The sight distance for the driveway is approximately

590 feet, which is less than the standard 1,155 feet for a two-lane rural highway. There have been 13 accidents at this intersection during a 3-year study period. Improving the intersection sight distance involves costly re-aligning of the intersection and cutting back of the slopes along Route 22.

Probable Cost: Moderate to high, but state and/or federal transportation improvement programs could potentially fund much of the cost.

Estimated Technical Requirements: Average

Potential Environmental Impacts: Potential ROW impacts, land use

3.4.12 **Haight Road, North East**

Existing Characteristics of Concern and/or Project Objectives: The concern here is similar to the concern for the Dover High School entrance. Left turns from Rout 22 to Haight Road appear to have limited sight distance. The heavy volume of traffic turning into and out of the school is also a concern. No reported accident data, sight distance measurements, or traffic volume data exist to support these concerns. These conditions should be verified and quantified prior to proposal of improvements. Provision of a traffic signal at this location may ease safety concerns, if warranted. A signal warrant analysis should be performed for this intersection to determine if a traffic signal is warranted. The slip ramp on the northwest corner of the intersection could also be eliminated or made one-way from Route 22 to Haight Road.

This would improve the sight distance angle for vehicles making left turns from Haight Road onto Route 22 northbound.

Probable Cost: Low

Estimated Technical Requirements: Average

Potential Environmental Impacts: Minimal

3.4.13 **Downey Road, North East**

Existing Characteristics of Concern and/or Project Objectives: The concern again at this intersection is sight distance. There are no reported accident data or sight distance measurements to support this concern, however. Sight distance could be improved somewhat by clearing some of the existing brush along Route 22. To provide the standard sight distance, significant profile modifications to Route 22 would be necessary. As transportation improvements are developed in this area, actual sight distance measurements should be taken and improved to the extent possible.

Probable Cost: High, but state and/or federal transportation improvement programs could potentially fund much of the cost.

Estimated Technical Requirements: Average

Potential Environmental Impacts: Land acquisition likely

3.4.14 **Route 199, North East**

Existing Characteristics of Concern and/or Project Objectives: This intersection is another "Y" intersection with separate, skewed connections to Route 22. One leg a yield controlling access onto Route 22. To make this a safer intersection, it should be reconfigured into a 90□ intersection with all vehicles having to

stop before turning onto Route 22. There is also a perceived accident problem with left turns onto Route 199 from northbound Route 22. No accidents were reported during the 3-year study period used for this report. Provision of a left-turn lane, if warranted, and wider shoulders according to the recommended cross section guidelines would address this concern.

Probable Cost: Moderate

Estimated Technical Requirements: Average

Potential Environmental Impacts: None

3.4.15 **Route 44/Route 22, Millerton**

Existing Characteristics of Concern and/or Project Objectives:
This intersection has corner radii that are too tight to accommodate large tractor-trailer trucks traveling northbound on Route 22 and turning right on Route 44. Larger trucks have to swing wide into the opposing lane and onto the sidewalk in order to complete the turn. This is a perceived problem at this intersection. No data are available regarding the frequency of these conflicts, and no reported accident data were available. The strategy to improve safety at this location would be to consider NYSDOT limitations on the overall length of tractor-trailers making this turn. It is recommended that a detailed study of this location be conducted, including documentation of the frequency of truck turns, vehicle size, and pedestrian activity and a detailed accident analysis.

Probable Cost: High

Estimated Technical Requirements: Average

Potential Environmental Impacts: Social, Land-use, ROW Impacts

Highway Segments along Route 22

3.4.16 Dover High School to East Duncan Hill Road, Dover

Existing Characteristics of Concern and/or Project Objectives: The concern at this location is the vertical grade of Route 22 and the inability to pass mining trucks. Over a three-year period, 9 accidents have occurred on this section of roadway, resulting in an accident rate of 1.54 accidents per million vehicle miles (Acc/MVM). This is less than the statewide average of 1.98 Acc/MVM for similar roadways. Provision of a climbing lane would provide a way to get around slow-moving vehicles climbing the hill, but many impacts are associated with constructing a climbing lane, including construction cost, ROW acquisition, and environmental factors.

Probable Cost: High, but state and/or federal transportation improvement programs could potentially fund much of the cost.

Estimated Technical Requirements: Average

Potential Environmental Impacts: Land acquisition possible

3.4.17 Crossing Swamp River, Dover

Existing Characteristics of Concern and/or Project Objectives: The concerns for this roadway section are the same as for the Dover High School to East Duncan Hill Road section with similar strategies. Over a three-year period, 6 accidents have occurred

on this section of roadway, resulting in an accident rate of 7.21 Acc/MVM. This is significantly more than the statewide average of 1.98 Acc/MVM for similar roadways. Further investigation will be required to review the accident history in detail to determine if the proposed improvement and/or other improvements could reduce the accident rate on this section.

Probable Cost: High, but state and/or federal transportation improvement programs could potentially fund much of the cost.

Estimated Technical Requirements: Average

Potential Environmental Impacts: Land acquisition possible

3.4.18 **Grand Union to McDonald's, Dover**

Existing Characteristics of Concern and/or Project Objectives:
This section of roadway has several driveways to commercial establishments along Route 22. Over a three-year period, 13 accidents have occurred on this section of roadway, resulting in an accident rate of 15.62 Acc/MVM. This is significantly more than the statewide average of 1.98 Acc/MVM for similar roadways. Further investigation would be required to determine if the provision of a center left-turn lane would address the types of accidents that have occurred here.

Probable Cost: Moderate to High

Estimated Technical Requirements: Average

Potential Environmental Impacts: Social, Land-use, ROW Impacts